



To: Indiana State Board of Education (SBOE)

Date: December 1, 2017

Subject: Career & Technical Education (CTE) Program Categorizations and Funding Recommendations

Pursuant to Indiana Code (IC) [20-43-8-7.5](#), the Indiana Department of Workforce Development (DWD) submits the following report, providing recommendations to the Indiana State Board of Education (SBOE) on Career and Technical Education (CTE) program designations. The report outlines the methodology and the labor market information used to make such designations in determining tuition support funding that school corporations will receive for students enrolled in CTE courses during the 2018-2019 school year.

Background

Prior to Senate Enrolled Act 198-2017 (P.L. 230), CTE programs were designated¹ into one of fourteen categories with corresponding, statutorily defined² funding amounts as shown below:

State CTE Funding - Enrollment Reimbursement Rates Per Credit Hour			
	High Wage	Moderate Wage	Low Wage
More than Moderate Labor Market Demand	\$500	\$450	\$300
Moderate Labor Market Demand	\$450	\$300	\$225
Less than Moderate Labor Market Demand	\$300	\$225	\$150

State CTE Funding - Enrollment Reimbursement Rates Per Pupil	
Foundational	\$150
Introductory	\$300
Work-Based Learning	\$300
Cooperative Education Course	\$300
Apprenticeship	\$300

¹ The Indiana Department of Education (DOE) designated per pupil funded courses and how a course would be funded using DWD demand and wage labor market data.

² IC 20-43-8-12 (prior to SEA 198-2017)

Area Participation³	\$150
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These category designations are based on a funding per pupil/per credit hour formula or just per pupil formula e.g. foundational courses. To evaluate the nine course designations impacted by DWD demand and wage labor market information, a classification of instructional programs (CIP) to standard occupation codes (SOC) crosswalk⁴ was completed by DOE and DWD based on a National Center for Education Statistics (NCES) model that aligned CTE courses with occupations. The occupations used in the modeling were matched to the course standards that directly aligned with the skills needed for those occupations.⁵

The demand and wage data used to designate each program were set by DWD via a “2014 Report” (IC 20-43-8-12), which was used as the basis for school year 2014-2015, 2015-2016 and 2016-2017 CTE tuition support funding.⁶ The wage and demand definitions used in the “2014 Report” were:

Wage definitions:

- “High wage” is \$13.01 and above;
- “Moderate wage” is the average wage between \$8.01 and \$13.00; and
- “Less than moderate wage” is \$8.00 and below.

Demand definitions:

- More than moderate implies a demand level of 801 or higher total long-term projected openings
- Moderate demand implies a demand level of 201 to 800 total long-term projected openings
- Less than moderate demand implies a demand level of 200 or less total long-term projected openings

The 2015 budget changed the CTE per credit funding amount for high, moderate, and less than moderate wage/demand courses to be \$150 per pupil for foundational courses, \$300 per pupil for work-based learning course, and Introductory courses (\$300) were flat funded.

Senate Enrolled Act 198-2017; Public Law 230-2017

In 2017, the Indiana General Assembly tasked DWD with assigning CTE program designations and utilizing an updated methodology for advanced, CTE courses. P.L. 230-2017 consolidated the current nine wage and demand categories currently being used into three distinct categories: high value, moderate value, and less than moderate value; while maintaining

³ Previous language in IC 20-43-8-12 stated: “The number of pupils participating in a career and technical education program in which pupils from multiple schools are served at a common location would receive an additional \$150 to the course funding amount as otherwise specified.

⁴ CIP is a standardized, numerical classification assigned to each individual CTE program. A SOC is also a standardized, numerical classification system that is used by federal agencies to classify workers into occupational categories. Sources: [Classification of Instructional Programs \(CIP\)](#) and [Standard Occupational Classification \(SOC\)](#).

⁵ NCES – [2010 CIP-SOC Crosswalks](#)

⁶ [2014 CTE Annual Report](#)

current funding levels for introductory and foundational programs. Apprenticeships, cooperative education courses, work-based learning courses were changed from \$300 per pupil to \$150 per pupil.

Funding is also maintained for students participating in a CTE program in which students from multiple schools are served at a common location (area participation), however the criteria for eligibility has been revised. Eligibility is now restricted to only those students who travel from the school in which they are currently enrolled to the conducting school for the instruction. A summary is provided below:

State CTE Funding – Enrollment Reimbursement Rates Per Credit Hour	
High Value Program	\$680
Moderate Value Program	\$400
Less than Moderate Value Program	\$200

State CTE Funding - Enrollment Reimbursement Rates Per Pupil	
Introductory	\$300
Apprenticeship	\$150
Cooperative Education Course	\$150
Foundational	\$150
Work-Based Learning	\$150
Area Participation Program	\$150

Additionally, P.L. 230-2017 mandates that any future CTE program be approved by DWD in order for a school corporation to receive a CTE enrollment grant.⁷

Updated CIP-SOC Crosswalk

CTE Pathways Group – Reclassifying the CTE CIP-SOC Crosswalk

In October of this year, the DOE initiated a review of CTE pathways by establishing “pathway committees,” which were led by a designated pathway specialist from DOE. The first agenda item for each committee was to review the CIP-SOC crosswalk for each of the courses in their respective pathway. Identifying the appropriate SOC code that aligned with the corresponding CIP (CTE) program was critical in determining the occupational pathway each CTE program was teaching towards to assign demand and wage ranking outcomes. Each pathway committee then submitted their recommendations to the DWD.

It is important to note that representatives from the private sector, DOE, DWD, and secondary/postsecondary education participated in the committee work.

IN Demand Ranking Methodology

⁷ [P.L. 230-2017](#)

Indiana has established an occupational demand ranking system designated by “flames.” An occupation will be assigned between 1 and 5 flames, depending on how “in demand” that occupation is in Indiana. The more flames associated with an occupation, the more in-demand and higher wage that occupation is in comparison to other occupations. The methodology for the occupational demand ranking system is detailed below.⁸

Each occupation in Indiana is designated a 1-10 score in 5 categories:

1. Total Openings (X2);⁹
2. Growth Openings (for both short term and long term outlook);
3. Percentage Change;
4. Real Time Labor Market Information; and
5. Wages.¹⁰

The scoring method is determined by deciles or, in other words, a percentile system ranging from the 90th percentile down to the 10th percentile and under. The averaged total for each occupation is then divided by two to produce an Indiana Demand Ranking in both outlooks. Lastly, both the short term and long term outlook Indiana Demand Ranking scores for each occupation are averaged to calculate the occupation’s final rating. Because occupational demand drives the ranking of occupations, median wage levels can vary within each scoring threshold, however a wage rule is in place to prevent low wage, high demand occupations from scoring within the 3 to 5 flame categories. Any occupation scoring 3 or 4 (out of 10) in the wage category cannot score higher than 3 flames, and any occupation scoring 1 or 2 (out of 10) in the wage category cannot score higher than 2 flames.

Scoring Mechanism

Indiana Demand Ranking scores per occupation code were averaged by the occupation grouping determined to align with each CTE course program code (CIP). Less than moderate value courses were determined by having an average score within a 0.00-2.99 threshold. Moderate value courses were determined by having an average score within a 3.00-3.49 threshold, and high value courses were determined by having an average score between 3.5 and 5.00.

New Flame Funding Levels with Flames Thresholds		
Course Designation	Flame Threshold	Reimbursement Rate (per Credit/per Pupil)
Less than Moderate Value	0.00-2.99	\$200
Moderate Value	3.00-3.49	\$400
High Value	3.50-5.00	\$680

⁸ [IN Demand Flame Methodology](#)

⁹ Demand is double weighted, hence the “(2X).”

¹⁰ Wages are calculated using 2016-2018 short term projections and 2014-2024 long term projections and Bureau of Labor Statistics Occupational Employment Statistics wage estimates.

DOE Course Code	DOE Course Name	Current Funding Threshold	Current Funding Rate	New Funding Threshold	New Funding Rate
4522	Advanced Accounting	Introductory	\$300	Moderate Value	\$400
4524	Introduction to Accounting	Introductory	\$300	Introductory	\$300
4560	Business Law and Ethics	Introductory	\$300	Less Than Moderate Value	\$200
4562	Principles of Business Management	High Demand - High Wage	\$500	Introductory	\$300
4588	Networking II: Infrastructure	High Demand - High Wage	\$500	High Value	\$680
4728	Robotics Design and Innovation	N/A	N/A	Introductory	\$300
4784	Introduction to Manufacturing	Introductory	\$300	Introductory	\$300
4790	Introduction to Communication	Introductory	\$300	Introductory	\$300
4792	Introduction to Construction	Introductory	\$300	Introductory	\$300
4794	Introduction to Design Processes	Introductory	\$300	Introductory	\$300
4796	Introduction to Advanced Manufacturing and Logistics	Introductory	\$300	Introductory	\$300
4798	Introduction to Transportation	Introductory	\$300	Introductory	\$300
4800	Computers in Design and Production	Introductory	\$300	Introductory	\$300
4801	Computer Science I	High Demand - High Wage	\$500	High Value	\$680
4802	Introduction to Engineering Design non PLTW	Introductory	\$300	Introductory	\$300
4810	Computer Integrated Manufacturing PLTW	Moderate Demand - High Wage	\$450	High Value	\$680
4812	Introduction to Engineering Design PLTW	Introductory	\$300	Introductory	\$300
4814	Principles of Engineering PLTW	High Demand - High Wage	\$500	High Value	\$680
4816	Aerospace Engineering PLTW	High Demand - High Wage	\$500	High Value	\$680
4818	Environmental Sustainability	Moderate Demand - High Wage	\$450	Moderate Value	\$400
4820	Civil Engineering and Architecture PLTW	Moderate Demand - High Wage	\$450	High Value	\$680

4826	Digital Electronics PLTW	Moderate Demand - High Wage	\$450	High Value	\$680
4828	Engineering Design and Development PLTW	High Demand - High Wage	\$500	High Value	\$680
4830	Construction Trades: Electrical I	High Demand - High Wage	\$500	High Value	\$680
4832	Construction Trades: Electrical II	High Demand - High Wage	\$500	High Value	\$680
4836	Mechanical Drafting and Design I	Moderate Demand - High Wage	\$450	Moderate Value	\$400
4838	Mechanical Drafting and Design II	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5002	Agribusiness Management	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5008	Animal Sciences	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5056	Introduction to Agriculture, Food and Natural Resources	Introductory	\$300	Introductory	\$300
5070	Advanced Life Science: Animals (L)	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5072	Advanced Life Science: Foods(Chemistry of Foods) (L)	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5074	Advanced Life Science: Plants and Soils (L)	Moderate Demand - High Wage	\$450	Less Than Moderate Value	\$200
5088	Agriculture Power, Structure and Technology	Moderate Demand - High Wage	\$450	High Value	\$680
5102	Food Science	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5132	Horticultural Science	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5136	Landscape Management I	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5137	Landscape Management II	High Demand - High Wage	\$500	Less Than Moderate Value	\$200

5170	Plant and Soil Science	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5180	Natural Resources	Low Demand - High Wage	\$300	Less Than Moderate Value	\$200
5203	Dental Careers I	High Demand - High Wage	\$500	High Value	\$680
5204	Dental Careers II	High Demand - High Wage	\$500	High Value	\$680
5207	Work Based Learning Capstone, Health Science	Work Based Learning	\$300	Work Based Learning	\$150
5210	Emergency Medical Services	High Demand - Moderate Wage	\$450	Moderate Value	\$400
5211	Veterinary Careers I	Moderate Demand - High Wage	\$450	High Value	\$680
5212	Veterinary Careers II	Moderate Demand - High Wage	\$450	High Value	\$680
5214	Health Science II: Pharmacy	High Demand - Moderate Wage	\$450	High Value	\$680
5215	Health Science II: Physical Therapy	High Demand - High Wage	\$500	High Value	\$680
5216	PLTW Human Body Systems	High Demand - High Wage	\$500	High Value	\$680
5217	PLTW Medical Interventions	High Demand - High Wage	\$500	High Value	\$680
5218	PLTW Principles of Biomedical Sciences	High Demand - High Wage	\$500	High Value	\$680
5219	PLTW Biomedical Innovation	High Demand - High Wage	\$500	High Value	\$680
5229	Sustainable Energy Alternatives	Moderate Demand - High Wage	\$450	Less Than Moderate Value	\$200
5230	Computer Tech Support	Moderate Demand - High Wage	\$450	High Value	\$680
5232	Interactive Media	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5234	Networking I	High Demand - High Wage	\$500	High Value	\$680
5236	Computer Science II: Programming	High Demand - High Wage	\$500	High Value	\$680
5239	Career & Technical Education Pilot Course	Pilot	\$300	Pilot*	\$300

5250	Computer Science II: Databases	Moderate Demand - High Wage	\$450	High Value	\$680
5251	Computer Science II: Informatics	High Demand - High Wage	\$500	High Value	\$680
5252	Computer Science II: Special Topics	High Demand - High Wage	\$500	High Value	\$680
5257	Networking II: Servers	High Demand - High Wage	\$500	High Value	\$680
5258	Banking and Investment Capstone	High Demand - High Wage	\$500	Moderate Value	\$400
5260	Work Based Learning Capstone, Business and Marketing	Work Based Learning	\$300	Work Based Learning	\$150
5268	Administrative and Office Management	High Demand - High Wage	\$500	High Value	\$680
5272	Introduction to Health Science Careers	Introductory	\$300	Introductory	\$300
5274	Medical Terminology	Moderate Demand - High Wage	\$450	High Value	\$680
5276	Anatomy & Physiology	Moderate Demand - High Wage	\$450	High Value	\$680
5282	Health Science Education I	High Demand - High Wage	\$500	High Value	\$680
5284	Health Science Education II: Nursing	High Demand - High Wage	\$500	High Value	\$680
5286	Health Science II: Special Topics	High Demand - High Wage	\$500	Moderate Value	\$400
5288	Health Science Education II: Medical Forensics	High Demand - High Wage	\$500	Moderate Value	\$400
5290	Health Science Education II: Athletic Training	High Demand - High Wage	\$500	Moderate Value	\$400
5330	Adult Roles and Responsibilities	Foundational	\$150	Foundational	\$150
5334	Consumer Economics	Foundational	\$150	Foundational	\$150
5336	Human and Social Services I	High Demand - High Wage	\$500	High Value	\$680
5340	Advanced Nutrition and Wellness	Introductory	\$300	Introductory	\$300
5342	Nutrition and Wellness	Foundational	\$150	Foundational	\$150
5344	Biochemistry of Foods (L)	Moderate Demand - High Wage	\$450	Moderate Value	\$400

5346	Culinary Arts and Hospitality II: Culinary Arts	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5350	Introduction to Housing and Interior Design	Introductory	\$300	Introductory	\$300
5352	Housing and Interior Design Careers I	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5360	Advanced Child Development	Introductory	\$300	Introductory	\$300
5362	Child Development	Foundational	\$150	Foundational	\$150
5364	Interpersonal Relationships	Foundational	\$150	Foundational	\$150
5366	Human Development and Wellness	Introductory	\$300	Introductory	\$300
5380	Introduction to Fashion and Textiles	Introductory	\$300	Introductory	\$300
5394	Preparing for College and Careers	Foundational	\$150	Foundational	\$150
5404	Education Professions II	High Demand - High Wage	\$500	Moderate Value	\$400
5406	Early Childhood Education II	High Demand - High Wage	\$500	Moderate Value	\$400
5408	Education Professions I	High Demand - High Wage	\$500	Moderate Value	\$400
5412	Early Childhood Education I	High Demand - High Wage	\$500	Moderate Value	\$400
5420	Fashion and Textile Careers I	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5421	Fashion and Textile Careers II	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5438	Introduction to Culinary Arts and Hospitality	Introductory	\$300	Introductory	\$300
5440	Culinary Arts and Hospitality I	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5456	Nutrition Science Careers I	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5457	Nutrition Science Careers II	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5458	Culinary Arts and Hospitality II: Hospitality Management	High Demand - High Wage	\$500	Moderate Value	\$400
5460	Housing and Interior Design Careers II	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5462	Human and Social Services II	High Demand - High Wage	\$500	High Value	\$680

5472	Residential Property Management Careers I	High Demand - High Wage	\$500	Moderate Value	\$400
5480	Work Based Learning Capstone, Family and Consumer Sciences	Work Based Learning	\$300	Work Based Learning	\$150
5495	Construction Trades: Heavy Equipment II	High Demand - High Wage	\$500	High Value	\$680
5496	Construction Technology HVAC I	High Demand - High Wage	\$500	High Value	\$680
5497	Construction Trades: Heavy Equipment I	High Demand - High Wage	\$500	High Value	\$680
5498	Construction Technology HVAC II	High Demand - High Wage	\$500	High Value	\$680
5510	Automotive Services Technology I	High Demand - High Wage	\$500	High Value	\$680
5514	Automotive Collision Repair I	High Demand - High Wage	\$500	Moderate Value	\$400
5518	Aerospace Engineering non PLTW	High Demand - High Wage	\$500	High Value	\$680
5520	Aviation Maintenance I	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5522	Aviation Maintenance II	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5524	Aviation Flight	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5528	Aviation Operations	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5530	3-D Computer Animation and Visualization	Moderate Demand - High Wage	\$450	Less Than Moderate Value	\$200
5534	Computer Integrated Manufacturing non PLTW	Moderate Demand - High Wage	\$450	High Value	\$680
5538	Digital Electronics Technology non PLTW	Moderate Demand - High Wage	\$450	High Value	\$680
5544	Automotive Collision Repair II	High Demand - High Wage	\$500	Moderate Value	\$400
5546	Automotive Services Technology II	High Demand - High Wage	\$500	High Value	\$680
5550	Graphic Design and Layout	High Demand - High Wage	\$500	High Value	\$680

5570	Commercial Photography	High Demand - Moderate Wage	\$450	Moderate Value	\$400
5572	Graphic Imaging Technology	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5578	Construction Trades II	High Demand - High Wage	\$500	High Value	\$680
5580	Construction Trades I	High Demand - High Wage	\$500	High Value	\$680
5592	Building and Facilities Management I	High Demand - High Wage	\$500	High Value	\$680
5593	Building & Facilities Maintenance I	High Demand - High Wage	\$500	Moderate Value	\$400
5594	Building & Facilities Maintenance II	High Demand - High Wage	\$500	Moderate Value	\$400
5595	Building and Facilities Management II	High Demand - High Wage	\$500	High Value	\$680
5601	Supply Chain Management and Logistics	High Demand - High Wage	\$500	High Value	\$680
5602	Warehouse Operations and Materials Handling	Moderate Demand - High Wage	\$450	High Value	\$680
5606	Advanced Manufacturing II	High Demand - High Wage	\$500	High Value	\$680
5608	Advanced Manufacturing I	High Demand - High Wage	\$500	High Value	\$680
5610	Industrial Automation and Robotics I	High Demand - High Wage	\$500	High Value	\$680
5612	Industrial Automation and Robotics II	High Demand - High Wage	\$500	High Value	\$680
5614	Introduction to the Energy Industry	Introductory	\$300	Introductory	\$300
5616	Energy Industry I	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5618	Energy Industry II	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5620	Diesel Service Technology I	High Demand - High Wage	\$500	High Value	\$680
5622	Tractor/Trailer Operation	High Demand - High Wage	\$500	High Value	\$680
5624	Diesel Service Technology II	High Demand - High Wage	\$500	High Value	\$680
5640	Architectural Drafting and Design I	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5644	Principles of Engineering non PLTW	High Demand - High Wage	\$500	High Value	\$680

5650	Civil Engineering and Architecture non PLTW	Moderate Demand - High Wage	\$450	High Value	\$680
5652	Architectural Drafting and Design II	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5684	Electronics and Computer Technology I	Moderate Demand - High Wage	\$450	High Value	\$680
5686	Industrial Technical Maintenance I	High Demand - High Wage	\$500	Moderate Value	\$400
5688	Industrial Technical Maintenance II	High Demand - High Wage	\$500	Moderate Value	\$400
5694	Electronics and Computer Technology II	Moderate Demand - High Wage	\$450	High Value	\$680
5698	Engineering Design and Development non PLTW	High Demand - High Wage	\$500	High Value	\$680
5776	Welding Technology I	High Demand - High Wage	\$500	High Value	\$680
5778	Welding Technology II	High Demand - High Wage	\$500	High Value	\$680
5782	Precision Machining I	High Demand - High Wage	\$500	Moderate Value	\$400
5784	Precision Machining II	High Demand - High Wage	\$500	Moderate Value	\$400
5802	Cosmetology I	High Demand - Moderate Wage	\$450	Less Than Moderate Value	\$200
5806	Cosmetology II	High Demand - Moderate Wage	\$450	Less Than Moderate Value	\$200
5820	Fire and Rescue I	High Demand - High Wage	\$500	Moderate Value	\$400
5822	Criminal Justice I	High Demand - High Wage	\$500	Moderate Value	\$400
5824	Criminal Justice II Advanced	High Demand - High Wage	\$500	Moderate Value	\$400
5826	Fire and Rescue II	High Demand - High Wage	\$500	Moderate Value	\$400
5842	Recreational and Mobile Equipment I	Moderate Demand - High Wage	\$450	Less Than Moderate Value	\$200
5844	Recreational and Mobile Equipment II	Moderate Demand - High Wage	\$450	Less Than Moderate Value	\$200
5858	Residential Property Management Careers II	High Demand - High Wage	\$500	Moderate Value	\$400

5892	Work Based Learning Capstone, Trade and Industry	Work Based Learning	\$300	Work Based Learning	\$150
5902	Interdisciplinary Cooperative Education	Work Based Learning	\$300	Work Based Learning	\$150
5914	Principles of Marketing	High Demand - High Wage	\$500	High Value	\$680
5918	Strategic Marketing	High Demand - High Wage	\$500	High Value	\$680
5962	Merchandising	Moderate Demand - High Wage	\$450	Moderate Value	\$400
5966	Entrepreneurship and New Ventures Capstone	High Demand - High Wage	\$500	Moderate Value	\$400
5974	Work Based Learning Capstone, Multiple Pathways	Work Based Learning	\$300	Work Based Learning	\$150
5975	Work Based Learning Capstone, Advanced Manufacturing	Work Based Learning	\$300	Work Based Learning	\$150
5982	Marketing in Hospitality	Low Demand - High Wage	\$300	Moderate Value	\$400
5984	Sports and Entertainment Marketing	Low Demand - High Wage	\$300	Moderate Value	\$400
5986	Radio and Television I	High Demand - High Wage	\$500	Less Than Moderate Value	\$200
5992	Radio and Television II	High Demand - High Wage	\$500	Less Than Moderate Value	\$200

**Approved pilot programs are to be funded at the introductory reimbursement rate.*